

Installing the EA_Gatekeeper

AC with battery backup option

General

NOTICE

The previous name for this product was the EA Collector. With the introduction of the EnergyAxis Management System version 7, the name for this product is EA_Gatekeeper. The installation instructions are the same regardless of the designation.

Within the EnergyAxis® System, the local data collector is one of the following devices:

- an EA_Gatekeeper within an A3 ALPHA® meter which uses the appropriate option boards for local area and wide area network communications
- an EA_Gatekeeper that can be mounted to different structures when deploying meter-based gatekeepers is not feasible or desired

This instructional leaflet explains the different installation options for the EA_Gatekeeper. For more information regarding the different gatekeepers within the EnergyAxis System:

- “A3 ALPHA meters with external antenna capability: for use in the EnergyAxis System” (IL42-4020) for information on installing an A3 ALPHA meter with external antenna options
- A3 ALPHA meter/collector (PG42-1005) for information on the operation of the A3 ALPHA meter/collector and the EA_Gatekeeper

The EA_Gatekeeper uses either a NEMA4-rated metal enclosure or a NEMA4X-rated plastic enclosure that provides different installation, powering, and WAN options.

Figure 1 shows the major components of the EA_Gatekeeper. Figure 2 through Figure 5 show illustrations of assembled EA_Gatekeepers.

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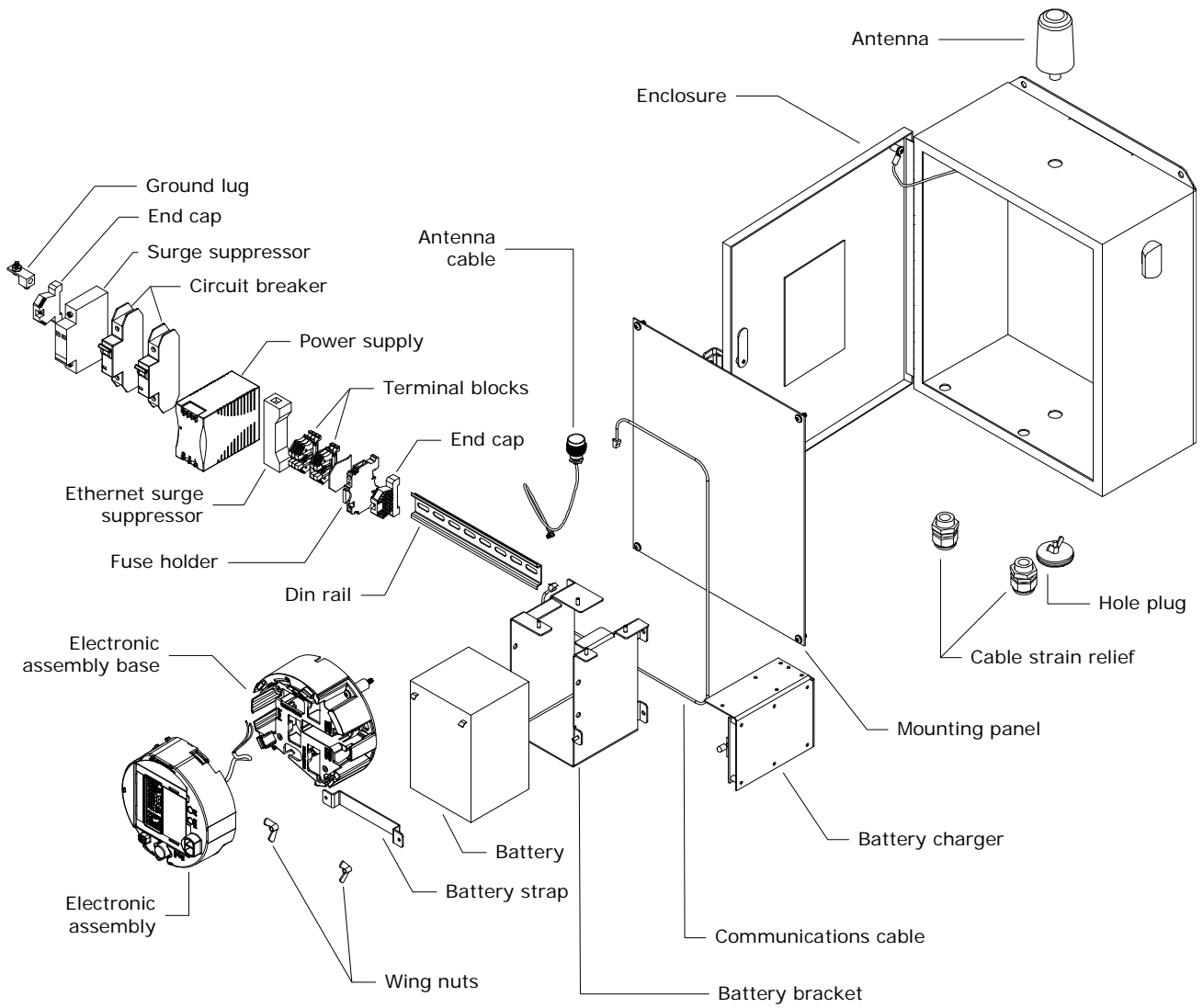
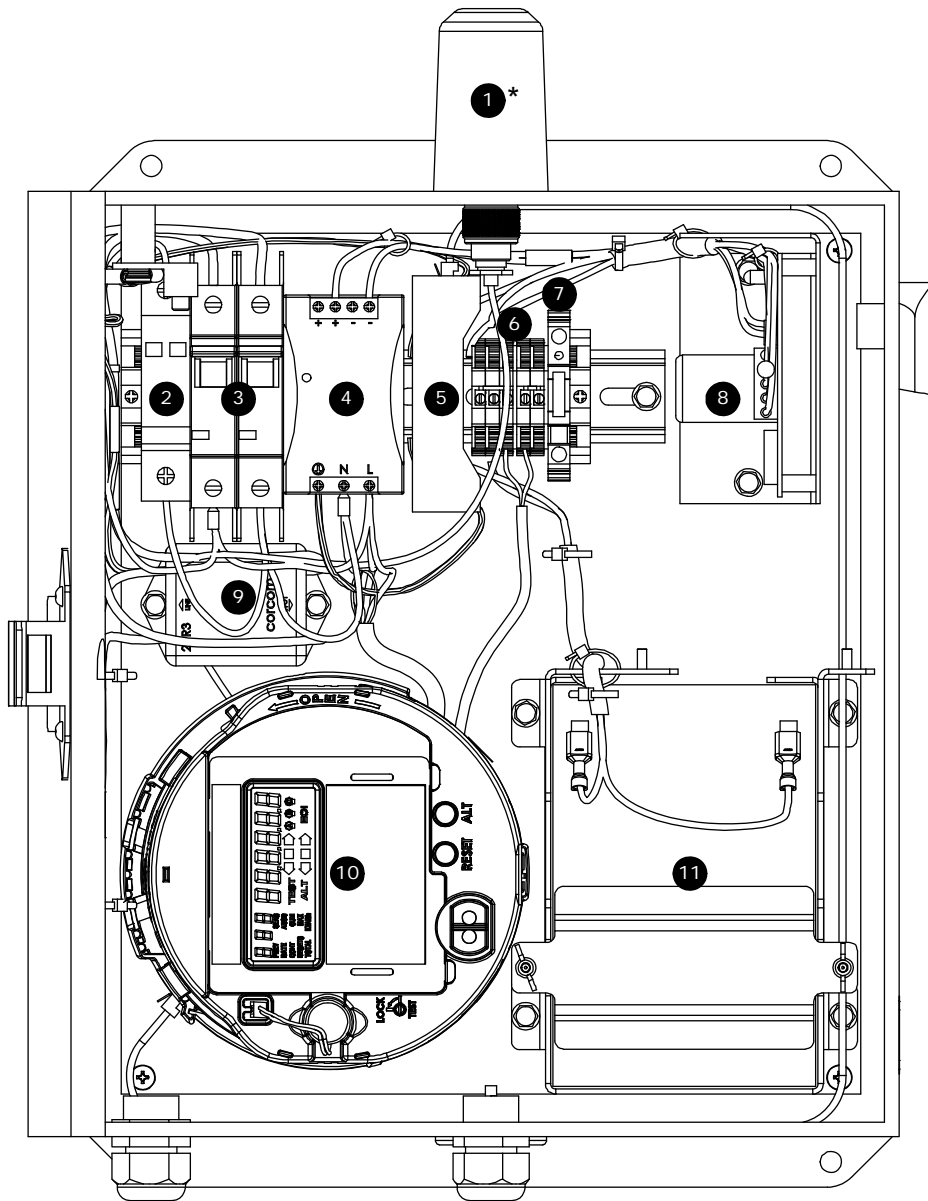
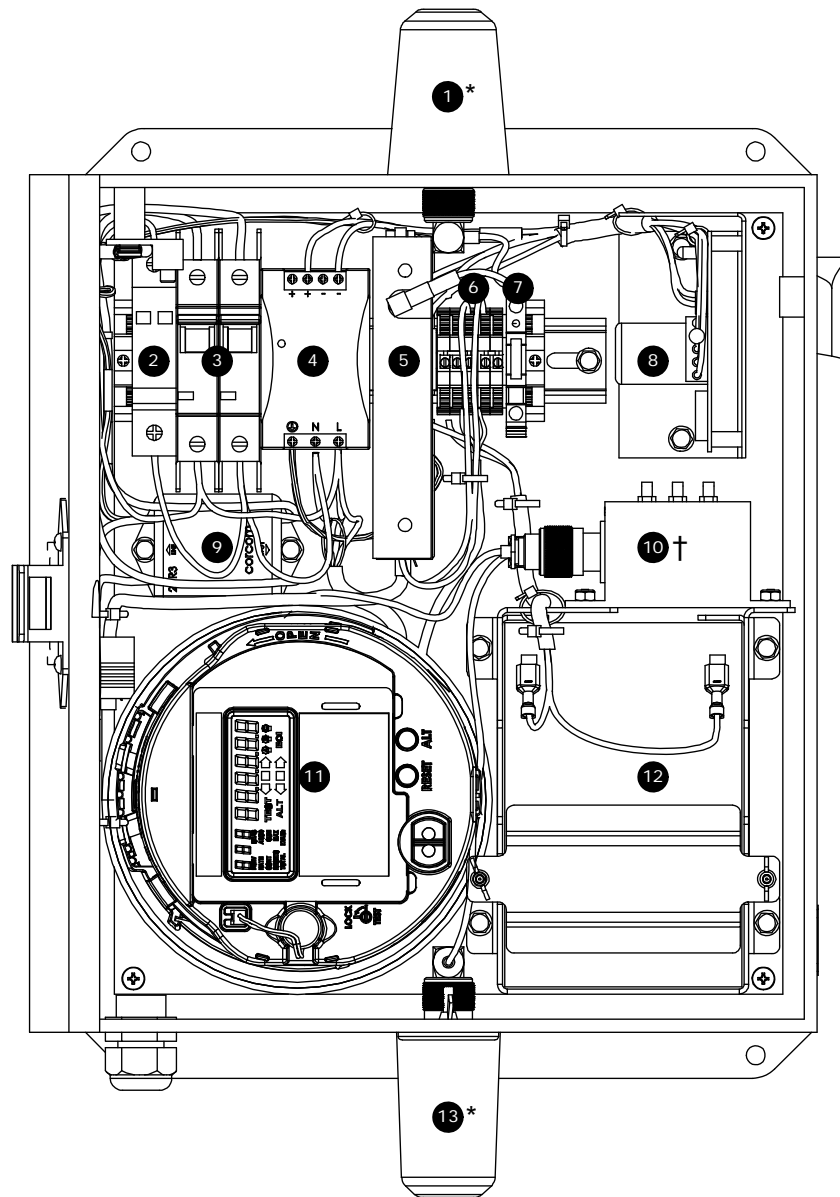


Figure 1. Exploded view of the EA_Gatekeeper with Ethernet (other models similar)



- | | |
|-------------------------------|-------------------------|
| 1 LAN local external antenna* | 7 Fuse holder |
| 2 Surge suppressor | 8 Battery charger |
| 3 Circuit breakers | 9 AC filter |
| 4 Power supply | 10 Local data collector |
| 5 Ethernet surge suppressor | 11 Battery |
| 6 Terminal blocks | |
- *May be replaced with N-type female connector for the remote external antenna option

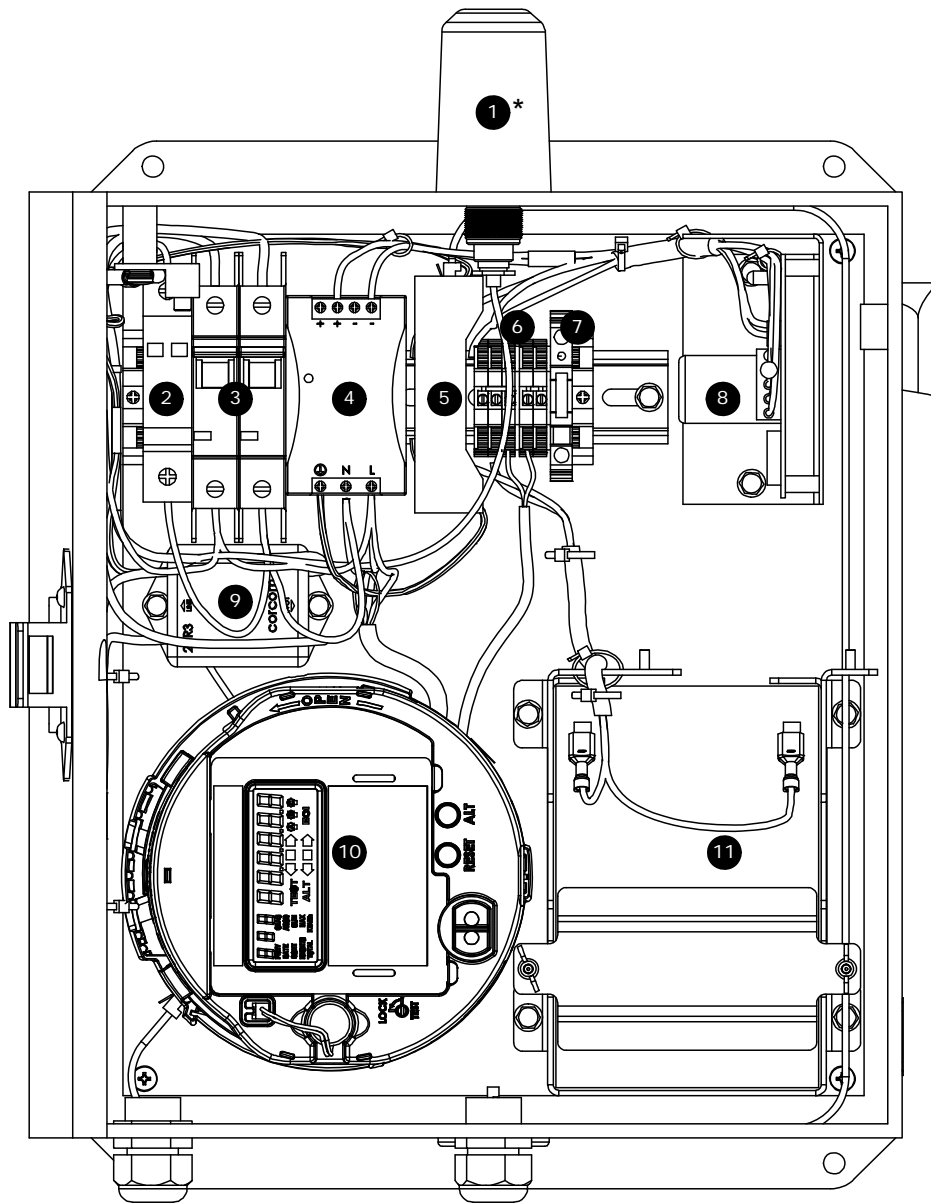
Figure 2. EA_Gatekeeper with Ethernet modem



- | | |
|-------------------------------|-------------------------------|
| ① WAN local external antenna* | ⑧ Battery charger |
| ② Surge suppressor | ⑨ AC filter |
| ③ Circuit breaker | ⑩ RF filter† |
| ④ Power supply | ⑪ Local data collector |
| ⑤ Cellular modem | ⑫ Battery |
| ⑥ Terminal blocks | ⑬ LAN local external antenna* |
| ⑦ Fuse holder | |

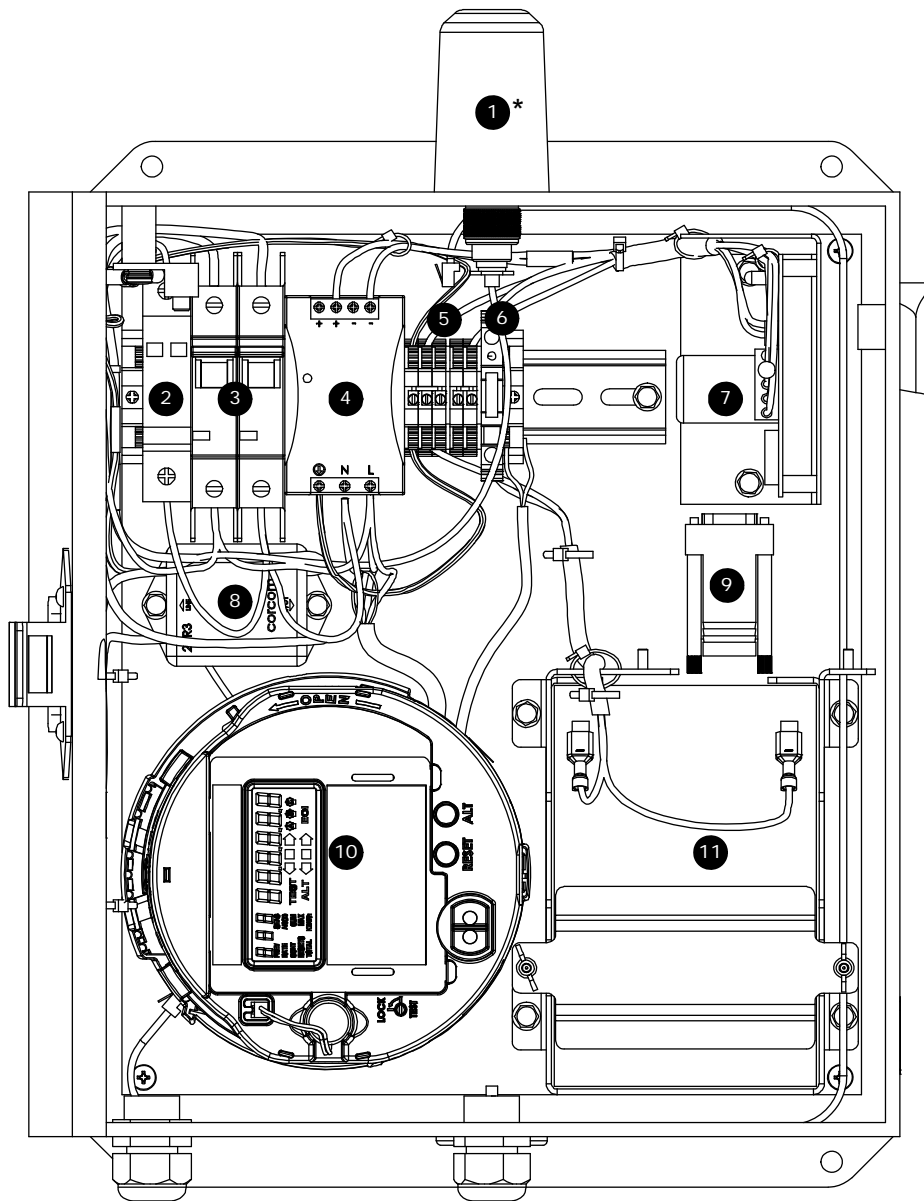
*May be replaced with N-type female connector for the remote external antenna option
 †Required only when 2 local external antennas are present

Figure 3. EA_Gatekeeper with cellular modem



- | | |
|-------------------------------|-------------------------|
| 1 LAN local external antenna* | 7 Fuse holder |
| 2 Surge suppressor | 8 Battery charger |
| 3 Circuit breakers | 9 AC filter |
| 4 Power supply | 10 Local data collector |
| 5 Telephone surge suppressor | 11 Battery |
| 6 Terminal blocks | |
- *May be replaced with N-type female connector for the remote external antenna option

Figure 4. EA_Gatekeeper with POTS/PSTN modem



- | | |
|-------------------------------|---------------------------|
| ① LAN local external antenna* | ⑦ Battery charger |
| ② Surge suppressor | ⑧ AC filter |
| ③ Circuit breaker | ⑨ DB9-RJ11 serial adapter |
| ④ Power supply | ⑩ Local data collector |
| ⑤ Terminal blocks | ⑪ Battery |
| ⑥ Fuse terminal | |

*May be replaced with N-type female connector for the remote external antenna option

Figure 5. EA_Gatekeeper with RS-232 connector

Before you install

⚠ WARNING

Use authorized utility procedures when installing the EA_Gatekeeper. Equipment damage, personal injury, or death can result if authorized utility procedures are not followed when installing the EA_Gatekeeper.

NOTICE

For optimal performance of the LAN antenna, Elster recommends that the EA_Gatekeeper be installed so that the LAN antenna is at least 5 feet off the ground. Failure to meet the minimum ground clearance can result in degraded performance of the EA_Gatekeeper communications within the EnergyAxis System.

The EA_Gatekeeper supports different mounting options, including mounting on 18-foot to 35-foot utility poles and telephone poles. The EA_Gatekeeper may have been shipped with the necessary hardware to support your mounting option, or your utility may have ordered the mounting hardware separately. Regardless of how the mounting hardware is provided, be sure to follow your utility's instructions for mounting the EA_Gatekeeper at its installation location.

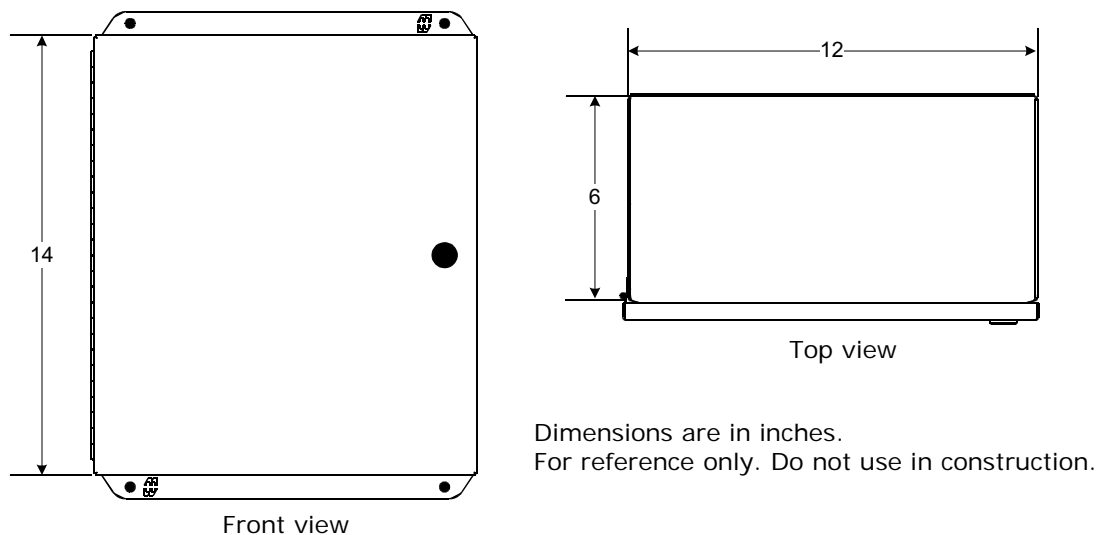


Figure 6. EA_Gatekeeper dimensions

Antenna options

The EA_Gatekeeper supports different antenna options. If the antennas are mounted on the unit itself (that is, local external antenna), no additional steps are required when placing the EA_Gatekeeper into service.

If the gatekeeper is to be installed at a location that requires a greater height to overcome blocked signals, a remote antenna will be required.¹ Placing the EA_Gatekeeper into service will require the mounting of the remote external antenna in a suitable location.

Note that the EA_Gatekeeper may use a local antenna, a remote antenna, or a combination of the two.

¹ Remote antenna cable is not supplied by Elster. Your Elster sales engineer can assist you in ordering the correct cable length if you know the distance required.

NOTICE

Do not use a standard RG-8/U cable with solid polyethylene dielectric. The losses in solid dielectric RG-8/U cables in short distances make solid dielectric RG-8/U cables unacceptable.

NOTICE

For assemblies with remote mounted antennas, be sure to waterproof the RF cable terminations (such as, using coax sealant) to help prevent water entering the cable terminations.

If the cable is mounted at the bottom of the enclosure, the cable should be mounted in drip loop fashion. A drip loop is formed by bringing the cable to a point below the enclosure and then bending it back up to the connector. This forms a U-shape that allows water to run down the cable exterior.

The most economical connection to the remote external antenna is the LMR-400 type cable. This type of cable is suitable for distances up to 100 feet (about 30 meters). Antenna cables should be ordered with N-type male connectors on each end.

LAN remote antenna

If a LAN remote antenna is required, the EA_Gatekeeper must be ordered specifying the LAN remote antenna option. The EA_Gatekeeper is then shipped with the appropriate LAN remote antenna and mounting materials.

The LAN remote antenna should be mounted in the clear, as free from conductive or metallic obstructions as possible. The connectors should be sealed for waterproofing.

WAN remote antenna

If a WAN remote antenna is required, the EA_Gatekeeper must be ordered specifying the WAN remote antenna option. The EA_Gatekeeper is then shipped with the appropriate WAN remote antenna and mounting materials.

The WAN remote antenna should be mounted in the clear, as free from conductive or metallic obstructions as possible. The connectors should be sealed for waterproofing.

Remote antenna cables

There are several options for remote antenna cabling. Regardless of whether the LAN or WAN antenna is remotely mounted, a cable with N-type male connectors is required. One end attaches to the EA_Gatekeeper housing, and the other end attaches to the antenna. Your Elster sales engineer can assist you in ordering the correct cable length if you know the distance required. You may also perform on-site assembly or order pre-assembled cables, for example, from Laird Technologies (+1 800 492 2320 or www.lairdtech.com).

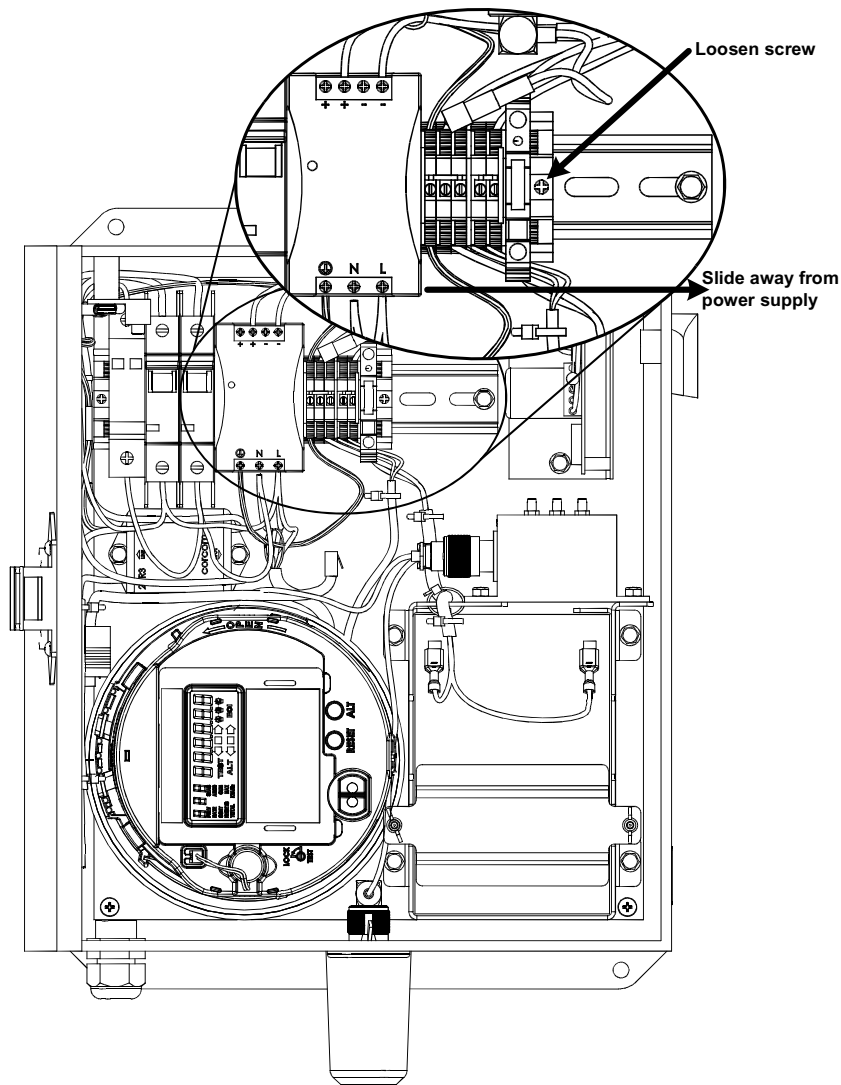
Installing a GPRS modem

If using a GPRS modem, you must install the modem into the EA_Gatekeeper before placing the gatekeeper into service. After authorizing the SIM card with your carrier, follow these procedures to install the SIM card into the modem.

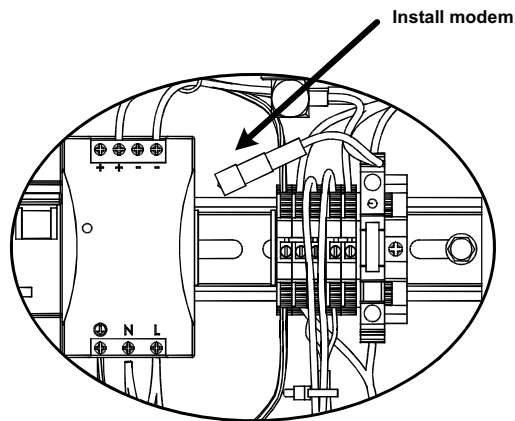
1. Remove the 2 screws that secure the modem's DIN rail bracket.
2. Remove the screw that secures the modem's SIM card door.
3. Insert the SIM card into the modem.
4. Replace the SIM card door to the modem and secure with a screw.
5. Replace the DIN rail bracket to the modem and secure with 2 screws.
6. Remove the protective backing on the adhesive on the sides of the modem.

After the SIM card is installed in the modem, follow these procedures to install the modem into the gatekeeper.

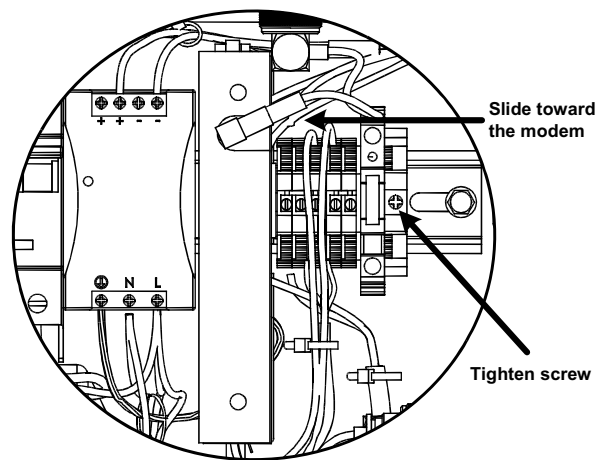
1. Loosen the screw from the terminal block and slide the terminal block away from the power supply.



2. Insert the modem between the power supply and the terminal block. Make sure the modem DIN rail bracket mounts to the gatekeeper's DIN rail.



3. Attach the DC power cable to the modem by attaching the red wire to the positive terminal and white wire to the negative terminal
4. Attach the RF cable to the modem, and attach the RJ45 crossover cable to the modem.
5. Slide the terminal block toward the modem and tighten the screw.



Placing the EA_Gatekeeper into service

▲ WARNING

Use authorized utility procedures when installing the EA_Gatekeeper. Dangerous voltages are present. Equipment damage, personal injury, or death can result if authorized utility procedures are not followed when installing the EA_Gatekeeper.

NOTICE

Be sure to properly ground the EA_Gatekeeper before placing the gatekeeper into service. See “Minimum recommended grounding guidelines” on page 12 for more information.

The EA_Gatekeeper is shipped with most of the wiring connections already made. To complete the wiring and place the EA_Gatekeeper into service:

1. Wire the power and ground to the EA_Gatekeeper (120/240 VAC, 50/60 Hz).
Power is applied to the EA_Gatekeeper by a cable that enters the enclosure through the base of the unit and connects to the AC line filter and chassis ground. Line power is connected to the brown flying lead, neutral/ Line 2 is connected to the blue flying lead, and ground is connected to the ground lug (see Figure 1 for location of the ground lug).
2. Insert the battery fuse to the fused terminal.
To preserve battery life during shipment and storage, the EA_Gatekeeper is provided without the battery fuse installed. To ensure that the battery is available as a backup power supply, insert the battery fuse into the fused terminal.
3. Close the breaker. The unit is now powered.
When you are ready to activate the EA_Gatekeeper, close the circuit breakers. After completing these steps, verify proper EA_Gatekeeper operation.
4. If supplied with a remote antenna, mount the antenna in a suitable location using authorized utility procedures.

Verifying EA_Gatekeeper operation

The EA_Gatekeeper has two LEDs that indicate the status of the power supply. The green LED is located on the power supply and indicates the status of the main power supply. The red LED is located on the battery charger and indicates the status of the backup battery power supply.

LED color	Location	Indicator	Definition
Green	Power supply	On (steady)	EA_Gatekeeper is operating using the main power supply.
		Off	Main power supply missing or below operating threshold.
Red	Battery charger	On (steady)	Backup battery is charging.
		Blinking	EA_Gatekeeper is operating using the backup battery.
		Off	The backup battery is fully charged. EA_Gatekeeper is operating using the main power supply.

Verify the EA_Gatekeeper is communicating properly

If the EA_Gatekeeper uses a cellular modem, verify that the modem is working properly by checking the LED lights. If the EA_Gatekeeper is using an Ethernet connection, work with your Internet service provider (ISP) to troubleshoot any network connectivity problems.

Minimum recommended grounding guidelines

Be sure to follow your utility's procedures for properly grounding equipment. See Figure 7, Figure 8, and Figure 9 for the different minimum recommended grounding guidelines.

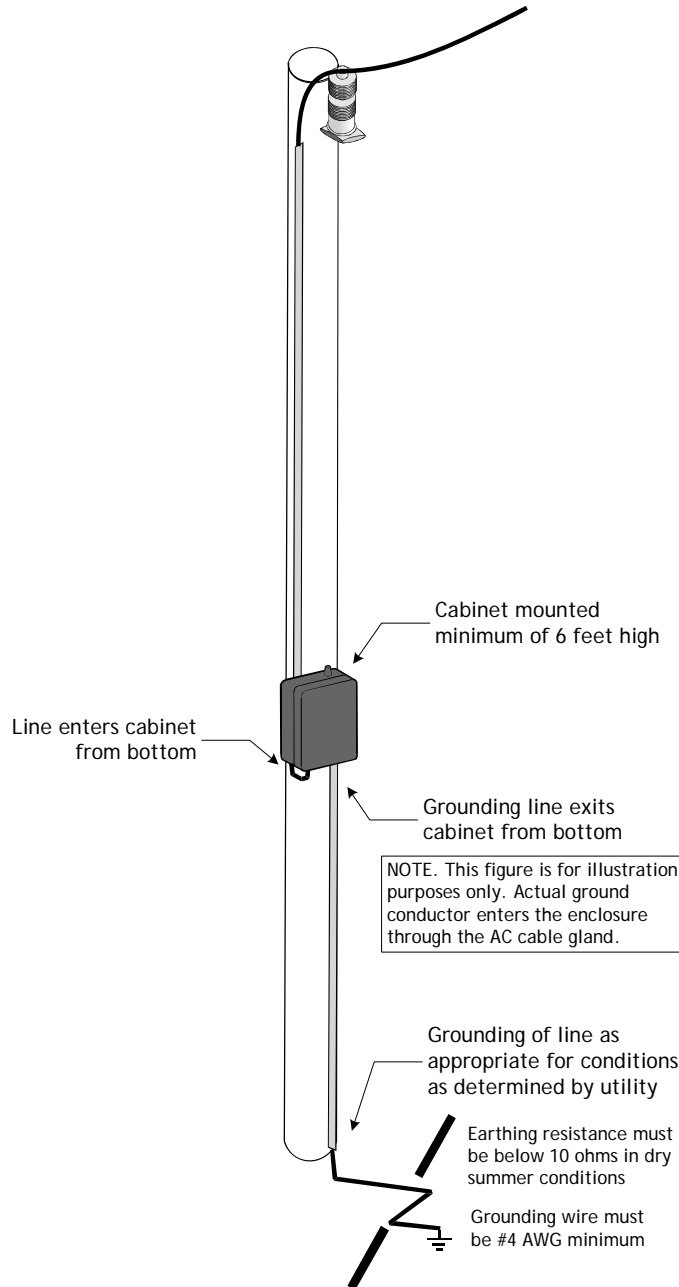


Figure 7. EA_Gatekeeper mounting (no transformer)

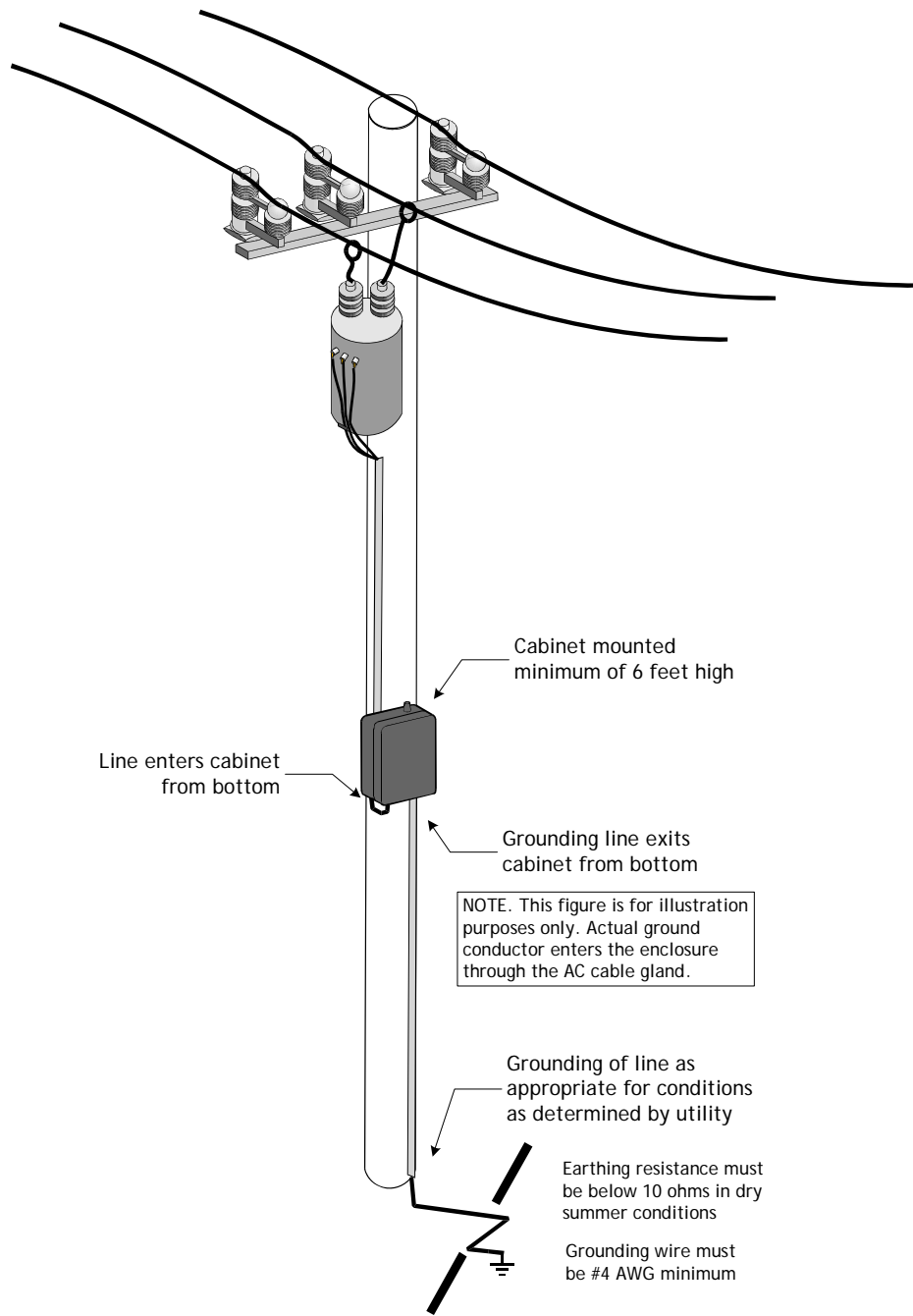


Figure 8. EA_Gatekeeper grounding (transformer)

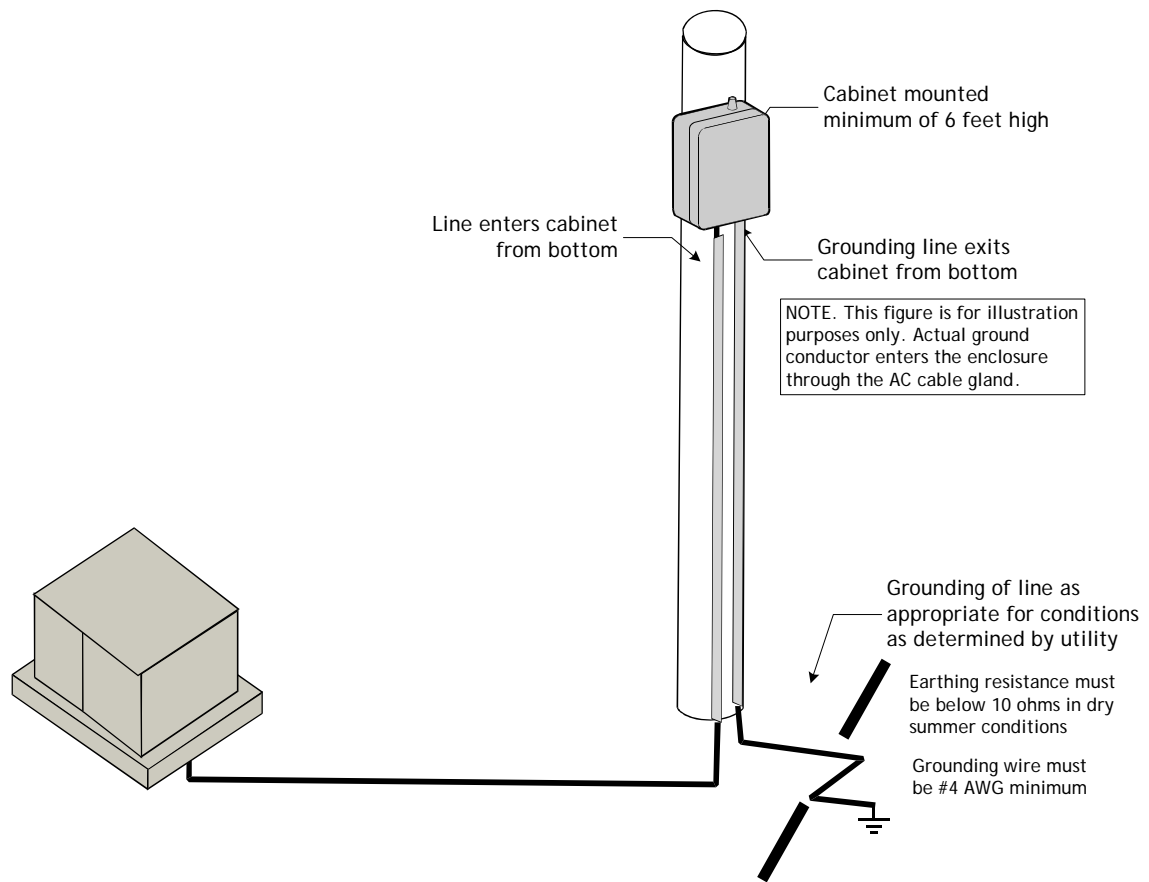


Figure 9. EA_Gatekeeper grounding (underground transformer)

Notes:

Notes:

FCC and Industry Canada Compliance

User Information (Part 15.105): This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, the user is encouraged to try to correct the interference by one or more of the following measures:

- reorient or relocate the receiving antenna
- increase the separation between the equipment and the receiver
- connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- consult the dealer or an experienced radio/TV technician for help

If you experience trouble with this equipment, please use the Return Material Request (RMR) feature available at the Online Customer Services at www.elsterelectricity.com. Do not attempt to repair this equipment itself unless you are replacing the entire module.

Compliance Statement (Part 15.19): This equipment complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada. Operation is subject to the following two conditions: 1) This device may not cause harmful interference, and 2) This device must accept any interference received, including interference that may cause undesired operation.

Antenna Compliance: To reduce potential interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than permitted for successful communication.

Warning (Part 15.21): Changes or modifications not expressly approved by Elster could void the user's authority to operate the equipment.

RF Radiation Safety Guidelines per Part 2 of FCC Rules and Regulations: The meter should be installed in a location where there will be a separation greater than 20 cm from locations occupied by humans.

Industry Canada Statement: The term "IC" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Collocation Statement: Collocation of simultaneously-transmitting (co-transmitting) antennas within 20 cm of each other in a final product is not allowed.

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